

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-28 (Canceled)

29. (New) A precursor article of a composite material comprising a polymeric matrix and at least one reinforcing yarn and/or fibers, said article comprising at least one reinforcing yarn and/or fibers and at least one polymeric-matrix yarn and/or fibers, wherein:

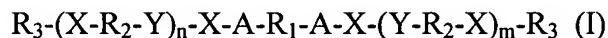
said reinforcing yarn and/or fibers are made of reinforcing material and optionally include a part made of a thermoplastic polymer;

said polymeric-matrix yarn and/or fibers are made of a thermoplastic polymer,

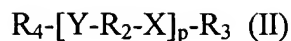
and in that:

said thermoplastic polymer of said reinforcing yarn and/or fibers and/or of said polymeric-matrix yarn and/or fibers comprises at least one polycondensate consisting of:

30 to 100 mol% (limits inclusive) of macromolecular chains satisfying the following formula (I):



0 to 70 mol% (limits inclusive) of macromolecular chains satisfying the following formula (II):



in which chains:

-X-, -Y- is a radical obtained from the condensation of two reactive functional groups F_1 and F_2 such that:

F_1 is the precursor of the -X- radical and F_2 is the precursor of the -Y- radical, or vice versa,

the functional groups F_1 cannot react together by condensation and

the functional groups F_2 cannot react together by condensation;

A is a covalent bond or an aliphatic hydrocarbon radical that may comprise heteroatoms and contains 1 to 20 carbon atoms;

R_2 is a branched or unbranched, aliphatic or aromatic hydrocarbon radical containing 2 to 20 carbon atoms;

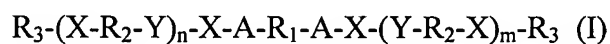
R_3 , R_4 represents hydrogen, a hydroxyl radical or a hydrocarbon radical;

R_1 is a linear or cyclic, aromatic or aliphatic, hydrocarbon radical containing at least 2 carbon atoms and optionally including heteroatoms; and

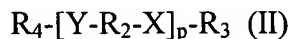
n, m and p each represent a number between 30 and 200.

30. (New) The article as claimed in claim 29, wherein the thermoplastic polymer comprises at least one polyamide A1 having:

30 to 100 mol% (limits inclusive) of macromolecular chains satisfying the following formula (I):



0 to 70 mol% (limits inclusive) of macromolecular chains satisfying the following formula (II):



in which:

Y is the $\begin{array}{c} \text{---N---} \\ | \\ R_5 \end{array}$ radical when X represents the $\begin{array}{c} \text{---C---} \\ || \\ O \end{array}$ radical;

Y is the $\begin{array}{c} \text{---C---} \\ || \\ O \end{array}$ radical when X represents the $\begin{array}{c} \text{---N---} \\ | \\ R_5 \end{array}$ radical;

A is a covalent bond or an aliphatic hydrocarbon radical optionally including heteroatoms and containing 1 to 20 carbon atoms;

R₂ is a branched or unbranched, aliphatic or aromatic, hydrocarbon radical containing 2 to 20 carbon atoms;

R₃, R₄ represents hydrogen, a hydroxyl radical or a hydrocarbon radical comprising a $\begin{array}{c} \text{---C---} \\ || \\ O \end{array}$ or $\begin{array}{c} \text{---N---} \\ | \\ R_5 \end{array}$ group;

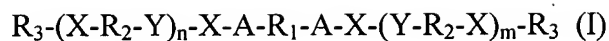
R₅ represents hydrogen or a hydrocarbon radical containing 1 to 6 carbon atoms;

R₁ is a linear or cyclic, aromatic or aliphatic, hydrocarbon radical containing at least 2 carbon atoms and optionally including heteroatoms; and

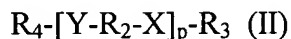
n, m and p each represent a number between 30 and 200.

31. (New) The article as claimed in claim 29, wherein the thermoplastic polymer comprises at least one polyester A2 consisting of:

30 to 100 mol% (limits inclusive) of macromolecular chains satisfying the following formula (I):



0 to 70 mol% (limits inclusive) of macromolecular chains satisfying the following formula (II):



in which chains:

Y is the -O- radical when X represents the $\begin{array}{c} \text{---C---} \\ || \\ \text{O} \end{array}$ radical;

Y is the $\begin{array}{c} \text{---C---} \\ || \\ \text{O} \end{array}$ radical when X represents the -O- radical;

A is a covalent bond or an aliphatic hydrocarbon radical optionally including heteroatoms and containing 1 to 20 carbon atoms;

R₂ is a branched or unbranched, aliphatic or aromatic, hydrocarbon radical containing 2 to 20 carbon atoms;

R₃, R₄ represents hydrogen, a hydroxyl radical or a hydrocarbon radical comprising a $\begin{array}{c} \text{---C---} \\ || \\ \text{O} \end{array}$ or -O- group;

R₁ is a linear or cyclic, aromatic or aliphatic, hydrocarbon radical containing at least 2 carbon atoms and optionally including heteroatoms; and

n, m and p each represent a number between 30 and 200.

32. (New) The article as claimed in claim 29, wherein n, m and p are between 30 and 150.

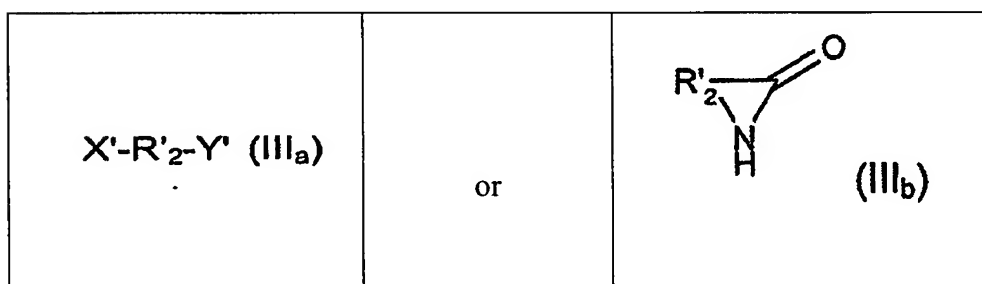
33. (New) The article as claimed in claim 30, wherein the polyamide A1 or the polyester A2 comprises at least 45 mol%, optionally at least 60 mol%, of macromolecular chains satisfying formula (I).

34. (New) The article as claimed in claim 29, wherein R_2 is a pentamethylene radical.

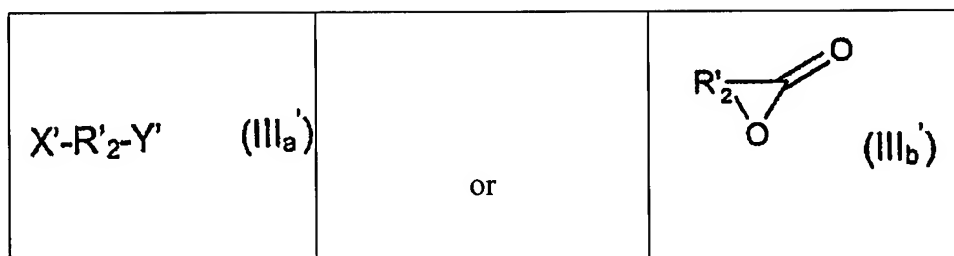
35. (New) The article as claimed in claim 30, wherein the polyamide A1 or the polyester A2 is obtained by copolymerization from a monomer mixture comprising:

a) a difunctional compound, the reactive functional groups of which are chosen from amines, carboxylic acids, alcohols and derivatives thereof, the reactive functional groups being identical;

b) monomers of the following general formulae (III_a) and (III_b) in the case of the polyamide A1:



b') monomers of the following general formulae (III_a') and (III_b') in the case of the polyester A2:



in which formulae:

R'₂ represents a substituted or unsubstituted, aliphatic, cycloaliphatic or aromatic hydrocarbon radical containing 2 to 20 carbon atoms and optionally including heteroatoms;

Y' is an amine radical when X' represents a carboxylic radical, or Y' is a carboxylic radical when X' represents an amine radical, in the case of the polyamide A1; and

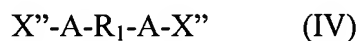
Y' is a hydroxyl radical when X' represents a carboxylic radical, or Y' is a carboxylic radical when X' represents a hydroxyl radical, in the case of the polyester A2.

36. (New) The article as claimed in claim 35, wherein compound a) represents between 0.1 and 2 mol% relative to the number of moles of monomers of type b) or b').

37. (New) The article as claimed in claim 30, wherein the polyamide A1 or the polyester A2 is obtained by melt blending a polyamide obtained by polymerization of lactams and/or amino acids or a polyester obtained by polymerization of lactones and/or hydroxyacids with a difunctional compound, the reactive functional groups of which are chosen from amines, alcohols, carboxylic acids and derivatives thereof, the reactive functional groups being identical.

38. (New) The article as claimed in claim 37, wherein the difunctional compound represents between 0.05 and 2% by weight relative to the weight of polyamide or polyester.

39. (New) The article as claimed in claim 32, wherein the difunctional compound is represented by formula (IV):



in which X'' represents an amine radical, a hydroxyl radical, a carboxylic group or derivatives thereof.

40. (New) The article as claimed in claim 32, wherein the difunctional compound is adipic acid, decanoic or sebacic acid, dodecanoic acid, terephthalic acid, isophthalic acid, hexamethylenediamine, methylpentamethylenediamine, 4,4'-diamino-dicyclohexylmethane, butanediamine, metaxylylenediamine, 1,3-propanediol, 1,2-ethanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol or polytetrahydrofuran.

41. (New) The article as claimed in claim 30, wherein the polyamide A1 or the polyester A2 is obtained by melt blending a polyamide of the type of those obtained by polymerization of lactams and/or amino acids or a polyester of the type of those obtained by polymerization of lactones and/or hydroxyacids, with a compound of formula (V):



in which:

R is a substituted or unsubstituted, linear or cyclic, aromatic or aliphatic hydrocarbon radical optionally including heteroatoms; and

G is a functional group or a radical that may react selectively either with the amine reactive functional groups, or with the alcohol reactive functional groups, or with the carboxylic acid reactive functional groups of the polyamide or of the polyester, in order to form covalent bonds.

42. (New) The article as claimed in claim 41, wherein the compound of formula (V) represents between 0.05 and 2% by weight relative to the weight of polyamide or polyester.

43. (New) The article as claimed in claim 29, further comprising at least one matrix yarn and/or fibers made of a linear thermoplastic polymer.

44. (New) The article as claimed in claim 43, wherein the linear polymer is an aliphatic and/or semicrystalline polyamide or copolyamide which is nylon-4,6, nylon-6, nylon-6,6, nylon-6,9, nylon-6,10, nylon-6,12, nylon-6,36, nylon-11, nylon-12, a semicrystalline semiaromatic polyamide, a copolyamide, or a polyphthalamides.

45. (New) The article as claimed in claim 29, wherein the matrix yarns and/or fibers further comprise additives, which are flame retardants, plasticizers, heat and light stabilizers, waxes, pigments, nucleating agents, antioxidants, or impact strength modifiers.

46. (New) The article as claimed in claim 29, wherein the reinforcing yarns and/or fibers are carbon, glass, aramid, polyimide yarns or fibers.

47. (New) The article as claimed in claim 29, wherein the reinforcing yarns and/or fibers are natural yarns, fibers, sisal, hemp or flax yarns.

48. (New) The article as claimed in claim 29, further comprising a matrix precursor powder material.
49. (New) The article as claimed in claim 48, wherein said matrix precursor powder material is a polyamide.
50. (New) The article as claimed in claim 29, formed from continuous or chopped yarns, tapes, mats, braids, wovens, knits, webs, multiaxial fabrics, or nonwovens.
51. (New) A composite, made by at least partial melting of the matrix yarns and/or fibers of an article as defined in claim 29.
52. (New) The composite as claimed in claim 51, having a reinforcement content of between 25 and 80% by weight.
53. (New) A process for the fabrication of a semifinished product, comprising the step of thermoforming or calendering the article as defined in claim 29, in order to at least partially melt the matrix yarns and/or fibers so as to impregnate the reinforcing yarns and/or fibers.
54. (New) A process for the fabrication of a finished product, comprising the step of thermoforming the article as defined in claim 29, to a final shape, in order at least partially melt the matrix yarns and/or fibers so as to impregnate the reinforcing yarns and/or fibers.